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VIII. *An Account of a small Lobe of the human prostate Gland, which has not before been taken Notice of by Anatomists.* By Everard Home, Esq. F. R. S.

Read February 20, 1806.

DISCOVERIES in the anatomy of the human body have been ever considered by this learned Society as deserving a place in the Philosophical Transactions: in the present improved state of our knowledge of this subject, a small addition to it cannot fail of being acceptable, since after the long continued labours of so many acute observers, such only can be expected, and even those are rarely to be acquired.

The subject of the present Paper is a portion of a gland, which from the obscurity of its situation has hitherto escaped observation: and were it not for the change produced in it by disease, which enlarges it so much that it sometimes completely shuts up the canal, by which the urine ought to pass, it would be little deserving of attention: but when this important effect is considered, the part itself becomes an object of very serious interest.

In stating the circumstances, which led to the present investigation, it may be necessary to mention that the prostate gland is liable in the latter period of life to enlarge: and when it does so there is frequently a nipple-like projection, which rises up and forms tumours of very different sizes in

the cavity of the bladder. These tumours, as they obstruct the passage of the urine, have attracted the attention of all anatomical surgeons, from the time of MORGAGNI to the present day. Their appearance has been accurately described, and specimens of them in different degrees of enlargement are preserved in every collection of morbid parts. The attention of surgeons has been naturally called to what is of the greatest consideration, the appearances they put on, and the symptoms they produce: but the particular circumstances in the natural conformation of the gland, which dispose it to form these tumours, have never been examined. MORGAGNI says, "These caruncles were found to grow out in the very middle of the upper and internal posterior circumference of the gland; but whether these things happened by chance or otherwise future observations will shew."*

From these expressions, it is evident that MORGAGNI had no idea that there was any conformation of the prostate gland, that could account for this tumour, and believed that it arose from the surface of the body of the gland.

Mr. HUNTER, in treating of the enlargement of the prostate gland, says, "From the situation of the gland, which is principally on the two sides of the canal, and but little if at all on the fore part, as also very little on the posterior side, when it swells it can only be laterally; whereby it presses

* Si ea, quæ ex Sepulchreto exempla indicavimus, et id, quod supra ex Valsalva attulimus, et nostra omnia attentè inspicias, cuncta in senibus fuisse animadvertes: ita nostra omnia, in quibus carunculæ initium fuit, hanc in medio ipso posteriori interni summique glandulæ ambitū excrescentem obtulisse: casune hæc cuncta, an secūs, futuræ ostendent observationes. MORGAGNI *de Sed. et Caus. Morb.* lib. iii. epist. 41, A. 19.

" the two sides of the canal together, and at the same time
" stretches it from the anterior edge or side to the posterior,
" so that the canal instead of being round, is flattened into a
" narrow groove. Sometimes the gland swells more on one
" side than the other, which makes an obliquity in the canal
" passing through it."

" Besides this effect of the lateral parts swelling, a small
" portion of it, which lies behind the very beginning of the
" urethra swells forward like a point, as it were, into the
" bladder; acting like a valve to the mouth of the urethra,
" which can be seen, even when the swelling is not consi-
" derable, by looking on the mouth of the urethra, from the
" cavity of the bladder, in the dead body. It sometimes in-
" creases so much, as to form a tumour projecting into the
" cavity of the bladder some inches."*

From the first paragraph it is evident that Mr. HUNTER was unacquainted with this lobe; and in the second we see that his knowledge of the disease led him to conclude, that in the natural state of the gland there was a portion of it in this situation: but neither at that time, nor at any future period of his life, did he prosecute the inquiry.

Although a great part of my time has been for many years occupied in attending patients labouring under complaints of the bladder and urethra, and my opportunities of examining these parts after death have been very frequent, my attention has been always so much employed on the modes of emptying the bladder, (an operation, which in many cases is attended with considerable difficulty,) that it never occurred to me to institute an inquiry for the purpose of attaining an accurate

* HUNTER on the Venereal Disease, page 169.

knowledge of the extent of the disease until the month of December, 1805.

At that time my attention was directed to this subject by the following circumstances. In the examination of the prostate gland of an elderly person, who had died in consequence of this part having been diseased, the nipple-like process was found very prominent, and a bridle, nearly $\frac{1}{4}$ of an inch in breadth, extended from the middle line of the tumour to the bulb of the urethra, where it insensibly disappeared. The usual rounded projection of the *caput gallinaginis* was not visible: it had wasted away, and the remains were concealed in the fold forming this bridle, which at that part was not thicker than at any other. The space between the tumour in the bladder, and the bulb of the urethra was unusually short, which is the reverse of what is commonly met with in old men; so that this bridle appeared to have drawn the bulb towards the tumour, and shortened the membranous part of the canal.

As this was an unusual appearance, it led me to consider it with attention, and to ask if other anatomists had noticed it; which as far as my inquiries have gone has not been the case. The bridle had evidently been formed by the membrane of the bladder adhering firmly to that part of the prostate gland composing the tumour, which it consequently followed in its future increase, and drew up after it the membrane of the urethra. In this way the fold had in time become nearly $\frac{1}{4}$ of an inch broad, and was continued of the same breadth to the bulb, where the lining of the urethra being more attached to the surrounding parts, it did not admit of being drawn up.

This appearance of a bridle is more or less met with in all the cases, in which the nipple-formed process occurs, but in so much smaller a degree, and not continued beyond the caput gallinaginis, that it never before led me to pay attention to it.

To satisfy myself how this tumour was formed, it became necessary to examine the prostate gland in its natural state; and ascertain whether there is any part sufficiently detached to move independent of the rest of the gland, and explain the appearances which had been met with in this particular case.

My professional avocations not affording time to make the dissections requisite for this purpose, Mr. BRODIE, Demonstrator of Anatomy to Mr. WILSON, Teacher of Anatomy, in Windmill-street, whose knowledge of the subject fitted him for the task, and whose zeal for the improvement of his profession made him willingly undertake it, gave me his assistance, and took the whole of that labour on himself.

While dissecting the parts for this purpose, the urinary bladder was distended with water, and the surfaces of the prostate gland, vesiculae seminales, and vasa deferentia, were fairly exposed. This being done, the vasa deferentia, and vesiculae seminales were carefully dissected off from the bladder, without removing any other part. These were turned down upon the body of the prostate gland. An accurate dissection was then made of the circumference of the two posterior portions of the prostate gland, and the space between them was particularly examined. In doing this a small rounded substance was discovered, so much detached that it seemed a distinct gland, and so nearly resembling COWPER's glands in size and shape, as they appeared in the same subject, in which they were unusually large, that it appeared to be a gland of

that kind. It could not however be satisfactorily separated from the prostate gland, nor could any distinct duct be found leading into the bladder.

A similar examination was made of this part in five different subjects. The appearance was not exactly the same in any two of them. In one there was no apparent glandular substance, but a mass of condensed cellular membrane: this, however, on being cut into, differed from the surrounding fat. In another there was a lobe blended laterally with the sides of the prostate gland. These facts are mentioned in proof of its not being always of the same size nor having exactly the same appearance; this is found also to be the case with COWPER's glands, they are sometimes large and distinct; in other subjects are scarcely to be detected, and in others again are in all the intermediate states. The most distinct and natural appearance of this part was in a healthy subject 25 years of age, of which the following is an account. On turning off the vasa deferentia and vesiculæ seminales, exactly in the middle of the sulcus, between the two posterior portions of the prostate gland, there was a rounded prominent body, the base of which adhered to the coats of the bladder. It was imbedded not only between the vasa deferentia and the bladder, but also in some measure between the lateral portions of the prostate gland and the bladder, since they were in part spread over it, so as to prevent its circumference from being seen, and they adhered so closely as to require dissection to remove them; nor could this be done beyond a certain extent, after which the same substance was continued from the one to the other. This proved it to be a lobe of the prostate gland, the middle of which had a rounded form, united to the gland at the base

next the bladder, but rendered a separate lobe by two fissures on its opposite surface. Its ducts passed directly through the coats of the bladder, on which it lay, and opened immediately behind the verumontanum. By means of this lobe a circular aperture is formed in the prostate gland, which gives passage to the vasa deferentia.

The appearance of this lobe has been since examined in a subject 24 years of age, and it was found still larger and more distinct. A representation of it is given in the annexed Plate.

Previous to this investigation it was not known to me that any distinct portion of the prostate gland was situated between the vasa deferentia and the bladder. These ducts were considered to pass in the sulcus between its two posterior portions, in close contact with the body of the gland. This account corresponds also with the description given by WINSLOW and HALLER; it is however now proved to be erroneous. It is not in my power to determine whether all the anatomists of the present day have fallen into this error in the same degree with myself: but none of them have pointed out this lobe; and, therefore, in whatever way they have described the vasa deferentia to pass into the bladder, they have neither anticipated nor thrown any light on the present inquiry.* HALLER says expressly, that "the prostate gland has no lobular appearance," and the anxiety which all anatomists have to improve their art, would have led them to correct this error, had they discerned that it was one.

This newly acquired anatomical fact enables us very clearly

* *Glandula, aut certe cellulosum compactum corpus, quod prostata dicitur.* P. 464.
Fabrica obscura est, et neque glandulae simplicis similis, cuius cavea esset aliqua,
neque composita; neque enim in lobulos recte discedit. P. 465. *Elem. Physiologiae*
Corporis Humani, Autore ALBERT. HALLER. Tom. VII.

to understand the nature of a disease, which it was not possible we could have a correct idea of, when we were ignorant of the existence of the part in which it takes place. It not only explains the situation of the tumour, the want of connection with the body of the gland, and the narrowness of its base where that is met with, but it solves what has ever appeared to me the greatest difficulty, how it should protrude into the cavity of the bladder. This arises from the hard substance of the coats of the *vasa deferentia* being in close contact, and bound down upon this lobe, so that from its first enlargement it must immediately press up the inner membrane of the bladder, which can make very little resistance.

This lobe of the prostate gland, from its situation and connection with the *vasa deferentia*, is liable to many causes of swelling, which the body of the gland itself is free from; for every irritation upon the seminal vessels or their orifices may be communicated to it by continuity of parts: and aged men, from an ignorance of these facts, are too often, through imprudence, producing an excitement in those vessels which the parts are unable to support; and when this is long continued, inflammation becomes the consequence, which cannot take place to any degree without being communicated to this lobe, and producing an enlargement of it.

Every violent effort which is made to empty the urinary bladder produces an unusual pressure against this lobe, by which it may be injured. There is also much reason for believing, that the diseased state of the lateral parts of the gland, so very commonly met with in the latter period of life, has its origin in this particular lobe; since in most of the cases of a diseased state of the gland, which have come under my observation after death, this lobe has been enlarged in a

greater degree in proportion to its size than any other part; and in some instances the enlargement of it has been very great, while it appeared to be only beginning in the lateral portions.

Difficulty in passing the urine is a symptom, which comes on very early in diseases of the prostate gland, and arises entirely from this lobe being increased in size, since any enlargement in the lateral portions of the gland widens the canal instead of diminishing it, and they do not require much force to separate them ; but the least increase of this lobe tends to shut it up.

The enlargement of this lobe produces an effect which is not generally known, and leads medical practitioners into an error respecting the nature of the complaint. The orifice of the urinary bladder, which is the lowest part in the natural state, is raised up in proportion to the increase of this lobe ; so that none of the contents below that level can be expelled, although whatever is above it is allowed with more or less difficulty to pass out. In this way the person never evacuates more than one half or one third of the urine contained in the bladder; but as the water which comes away passes in a stream, and the quantity voided in 24 hours is sufficient, no suspicion is entertained of the cause of the frequency and distress in passing it, and the symptoms are referred to an irritable state of the coats of the bladder. It is only by drawing off the urine through a catheter that the disease in this lobe can be ascertained ; as in that way alone the quantity of urine which is retained can be determined. No examination *per anum* can give the surgeon any information on this subject ; since the posterior surface of the vasa deferentia only is to be felt, if the finger should reach so far ; and yet it is in this way that practitioners in general pretend to judge of the greater or

less degree of the disease, although that portion of the gland, which forms the most important part of the complaint is wholly out of their reach.

The least projection of this lobe into the bladder stretches the internal membrane of that viscus which passes over it, keeps it in a state of irritation, and makes it liable to be grasped by the action of the sphincter muscle in expelling the last drops of urine, so as to give the patient excruciating pain. When it is more enlarged these symptoms go off.

From these observations it appears, that this small lobe of the prostate gland, which has been overlooked, is from the situation and the circumstances, in which it is placed more liable to become diseased than any other part of the gland, and produces symptoms of danger and distress peculiar to itself, which have been hitherto supposed to arise from the body of the gland becoming enlarged.

To enter further into the effects of disease on this lobe would be improper on the present occasion ; but not to have noticed them at all would have been equally so, since the only importance, that can be attached to the facts, which have been brought forward in this Paper, arises from the light they throw on the diseases of the prostate gland.

EXPLANATION OF THE PLATE. (Plate III.)

A posterior view of the outside of the bladder and prostate gland.

The vesiculæ seminales and vasa deferentia are dissected off and turned forwards, to shew the newly discovered lobe, which lies between them and the bladder. The two posterior parts of the lateral portions are spread open to expose the lobe lying between them.

